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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,277	11/13/2003	William P. Perkins	57357-077	5649

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MCDERMOTT, WILL & EMERY
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Washington, DC 20005-3096

EXAMINER

NGUYEN, HANH N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,277

Applicant(s)

PERKINS ET AL.

Examiner

Nguyen N Hanh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 12-45 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-11 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. In view of amendments, the Examiner withdraws the objection to the drawings and the objection to claims 7 and 8. The addition of claims 12-45 has been acknowledged.

Election/Restrictions

2. Newly submitted claims 12-45 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 1-11 drawn to the stator structure of an electric motor, classified in class 310, subclass 254.

Claims 12-45 drawn to the rotor and stator structure, classified in class 310, subclass 156.

3. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination (group II) does not require the "integrated structure fabricated from a unitary non-magnetic substance". The subcombination (group I) has separate utility (the subcombination can be used in a

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other combination without particular of combination such as the "plurality of permanent magnets".

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group I which is the "integrated structure fabricated from a unitary non-magnetic substance" is not required for Group II, restriction for examination purposes as indicated is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 12-45 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al. in view of Sylverson et al. and further in view of Glauning.

Regarding claim 1, Katagiri et al. disclose an electric motor vehicle comprising: a wheel (17 in Figs. 1 and 16) containing a motor stator and a motor rotor; an integrated structure fabricated from a unitary substance, said structure having a wheel axle portion (51 in Fig. 16) and a motor stator mounting element portion (51a), the stator mounting element portion having a cylindrical configuration with its axis collinear with the axis of the axle and wherein at least one ferromagnetic segment (53) of the motor stator is joined directly to the stator mounting element (Col. 10, lines 50-65). Katagiri et al. do not show the unitary substance is a non-ferromagnetic substance and the integrated structure comprising a central passage that extends along the axis of the axle portion and the stator mounting element portion;

However, Sylverson et al. disclose a motor structure wherein non-ferromagnetic material is used for the rotor core for the purpose of improving flux efficiency (Col. 32, lines 5-20).

Moreover, Glauning discloses a motor structure a central passage that extends along the axis of the axle portion and the rotor mounting element portion for the purpose of cooling the motor.

Since Katagiri et al., Sylverson et al. and Glauning are in the same field of endeavor, the purpose disclosed by Sylverson et al. and Glauning would have been recognized in the pertinent art of Katagiri et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Katagiri et al. by using non-ferromagnetic material for the integrated structure and forming a central passage that extends along

the axis of the axle portion and the stator mounting element portion as taught by Sylverson et al. and Glauning for the purpose of improving flux efficiency and cooling the motor.

Regarding claim 2, Katagiri et al. also disclose an electric motor vehicle wherein the diameter of the cylindrical stator mounting element portion is greater than its length in the direction of the axis and the axle portion comprises a section formed at each axial side of the stator mounting element portion (Fig. 16).

Regarding claim 3, Katagiri et al. also disclose an electric motor vehicle wherein the rotor comprises an annular ring configuration radially surrounding the stator (Figs. 16 and 19) and separated therefrom by a radial air gap, and a rotor housing (55); and the rotor housing is journaled to the axle portion via bearings (52).

Regarding claim 4, Katagiri et al. also disclose an electric motor vehicle wherein the wheel axle portion (51) extends on each axial side of the motor stator mounting element and bearings (52 and 52b) circumscribed the axle portion on both sides of the motor stator mounting element.

Regarding claim 5, Katagiri et al. also disclose an electric motor vehicle wherein a wheel assembly (17 in Fig. 1) is mounted on the rotor housing.

Regarding claim 6, Glauning also discloses an electric motor vehicle wherein the motor stator mounting element portion comprises cooling means (cooling passage through stator as shown in Fig. 1) in communication with said central passage for cooling the stator.

Allowable Subject Matter

7. Claims 7-11 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show an electric motor as described in claim 7 wherein the motor stator mounting element portion comprises cooling means in communication with said central passage for cooling the stator and said cooling means comprises: a plurality of cavities, each cavity formed along an arc at a fixed radial distance from the axis and extending in a direction parallel to the axis from a first end to a second end; and heat exchanger surfaces provided in the cavities.

Response to Arguments

9. Applicant's arguments filed on 11/15/2004 have been fully considered but they are not persuasive. The applicant's argument is on the ground that "it is not obvious to combine the references because there is no motivation for an ordinary skill in the art to modified a particular reference (Katakiri) with references with different structure". The Examiner respectfully disagrees with the Applicant. In the Art of motor and generator, there is several different structures have been proposed to form an electric motor or electric generator. An ordinary skill in the Art always tries to improve machine efficiency and life of the machine. The non-ferromagnetic armature core to isolate magnetic flux to improve flux efficiency (or machine efficiency) has been proposed by Sylverson (Col. 32, lines 5-20). Even Sylverson taught the non-magnetic core for a rotor, it is obvious to use the non-magnetic core for a stator because the rotor and the stator are the main components of an electric machine, one is rotates relatives to the other and either one can be made stationary or rotatably. Moreover, to improve machine efficiency and life

of the machine, cooling of an electric machine is a requirement in machine design. Several different cooling structure have been proposed and the idea of forming a cooling passage has been disclosed by Glauning.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information on How to Contact USPTO

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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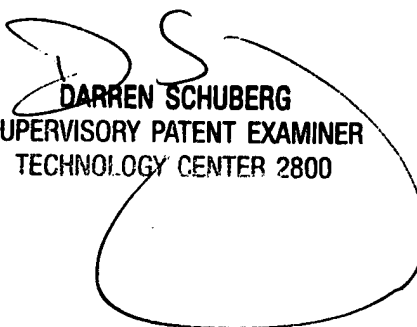
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872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

January 10, 2005


DARREN SCHUBERG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800